

BACKGROUND

- Obesity has been linked to psychosocial difficulties among childhood.
- Individuals using at risk attachment strategies are at risk of a disordered stress response.

OBJECTIVES

- Test the association between insecure attachment and basal cortisol levels in a sample of obese children.
- Investigate the role of familial vulnerability and gender .

METHODS

- Cortisol and catecholamines levels of 8- to 13-year olds obese children were measured.
- Self-report questionnaires were used to assess attachment pattern and current anxiety and depression, and parent-report questionnaires were used to assess attachment, current anxiety and depression and familial vulnerability.
- Linear regression analyses were performed for individuals that scored low versus high on parental internalizing problems, and for boys and girls, separately.

Measures	Boys Mean(SD)	Girls Mean (SD)
Anxiety CBCL	8,15 (4,79)	5,71 (5,17)
Internalizing Problems CBCL	13,89 (6,61)	11,52 (8,51)
Anxiety EADS	18,21 (16,31)	13,40 (17,18)
Depression EADS	21,41 (17,02)	17,36 (21,90)
Anxious Attachment	0,54 (0,16)	0,49 (0,17)
Evitant Attachment	0,50 (0,19)	0,47 (0,13))
Cortisol (CAR) (nmol/l)	11,97 (5,89)	10,29 (5,97)
Basal Cortisol (nmol/l)	4,66 (3,55)	10,03 (5,15)
Adrenaline (nmol/l)	0,33 (0,12)	0,62 (0,44)
Noradrenaline (nmol/l)	4,17 (2,93)	3,59 (2,87)
BMI percentil (nmol/l)	98,41 (1,67)	97,48 (2,51)

Tabel 1: Mean scores and standard deviations of all the anxiety, depression, attachment and physiological measures

RESULTS

In the group with high parental internalizing problems, insecure attachment was significantly associated with reduced basal levels of cortisol, in boys ( $p=0.007$ ,  $b= -0.861$ ,  $R2= 73.0\%$ )(fig.1) and higher in girls( $p=0,023$ ,  $b=0,977$ ,  $R2=95,5\%$ )(fig.2).

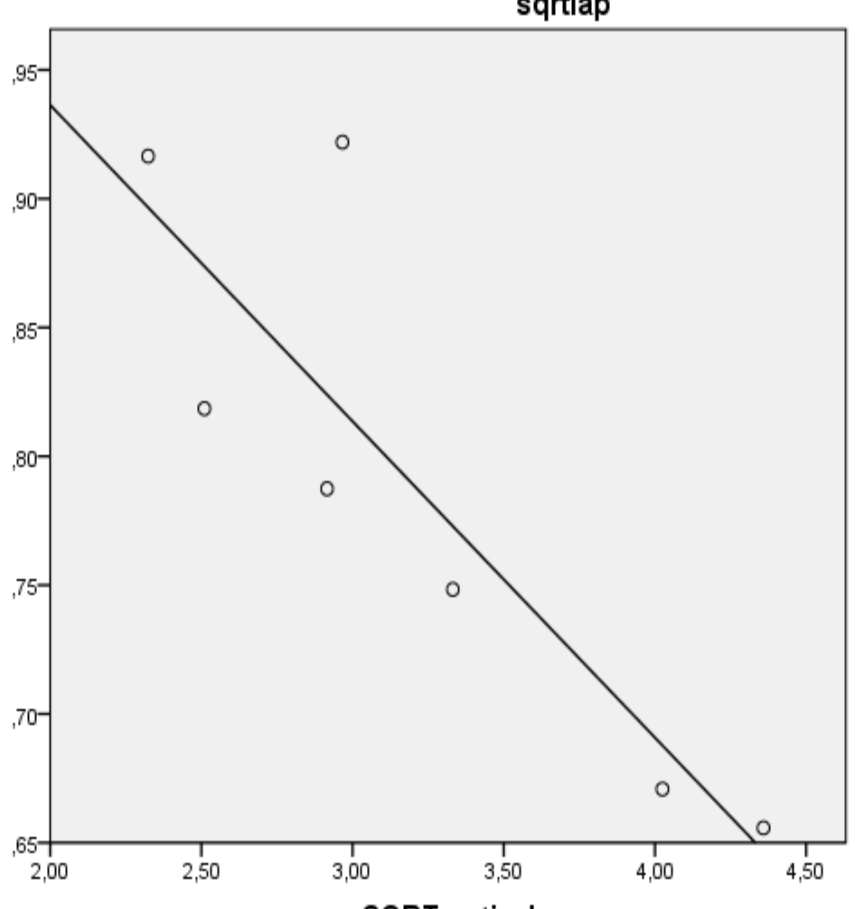


Fig. 1

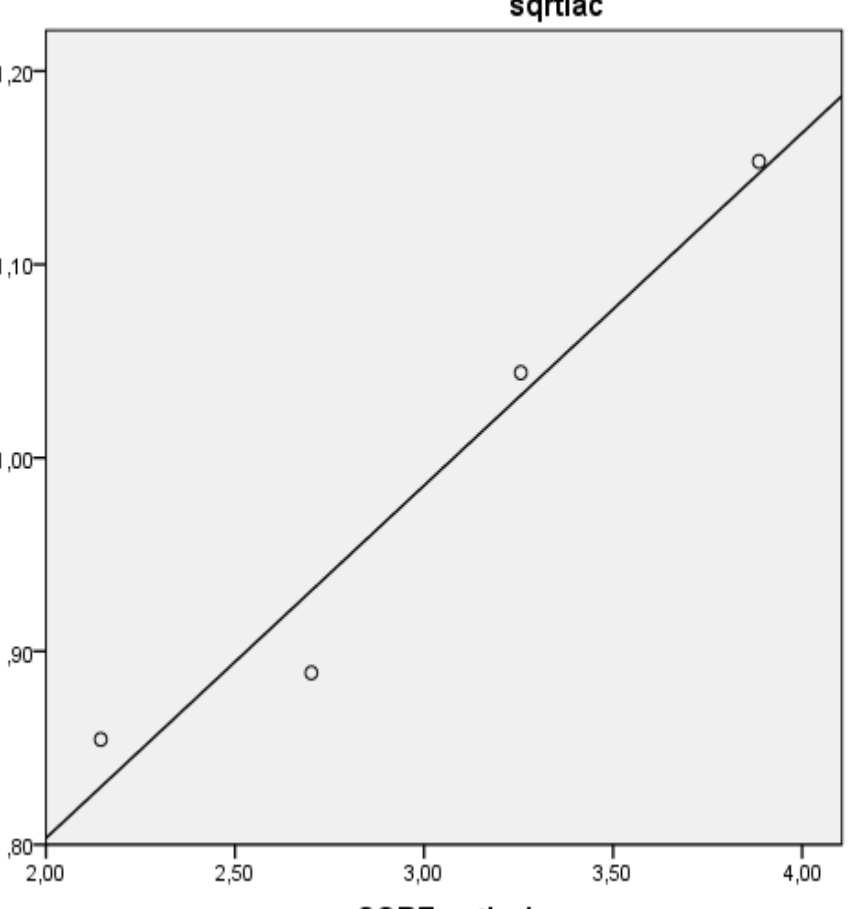


Fig. 2

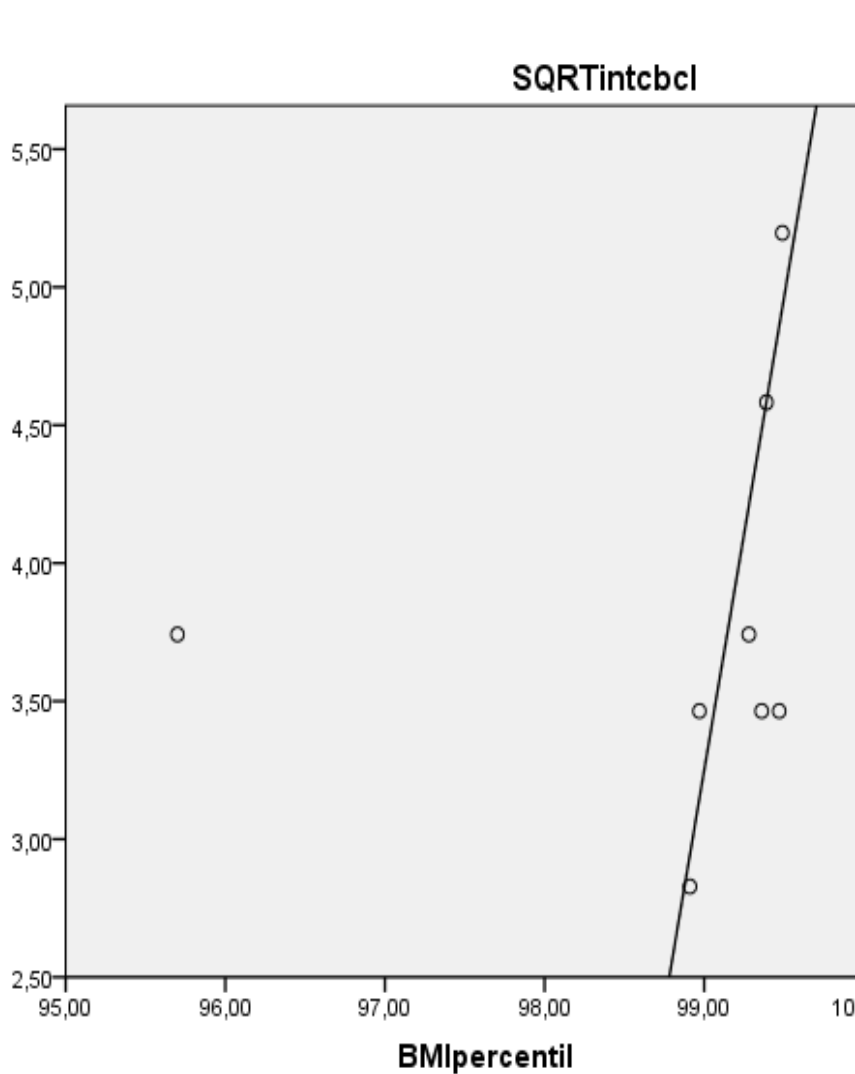


Fig. 3

In the group with low parental internalizing problems, the association between insecure attachment and cortisol was not significant in either boys or girls, and it was negative in boys ( $p=0.075$ ,  $b= -0.606$ ,  $R2= 36.7\%$ ) and positive in girls ( $p=0.677$ ,  $b= 0.176$ ,  $R2= 3.1\%$ ) (fig.3) between BMI percentil and internalizing symptoms in boys with high familial vulnerability ( $p=0,017$ ,  $b=0.940$ ,  $R2=0,955$ )

Tabel 2: Descriptives for variables split up between individuals with low or high parental internalizing problems and split up between boys and girls

Measures	Low parental Internalizing problems		Low parental Internalizing problems	
	Boys Mean(SD)	Girls Mean(SD)	Boys Mean(SD)	Girls Mean(SD)
EADS	3,36 (1,33)	2,36 (1,86)	5,43 (1,59)	6,10 (1,98)
Depression CBCL	3,29 (0,75)	2,87 (1,01)	4,07 (0,87)	4,18 (1,39)
Internalizing Problems CBCL-Anxiety	2,47 (0,78)	2,03 (0,70)	3,17 (0,81)	2,81 (1,36)

RESULTS

Possibly, parents with high levels of internalizing problems influence their children’s vulnerability to anxiety and depression problems through controlling, overprotective parenting behaviours that have been associated with increased risk for anxiety and depression problems in children (McLeod et al., 2007; Wood et al., 2003).

Beta’s, p-values, and effect sizes (R2)

Dependent Variable	Significant predictors	Beta’s, p-values, and effect sizes (R2)	
Cortisol	Anxious Attachment	B=-.306; p=0,100;R2=0,094	Girls: b=-.073; p=0,813, R2=0,005 Boys: b=-,678, p=0,004, R2=0,460
Adrenaline	Anxiety EADS Depression EADS Stress EADS  BMI percentil	B=-.965; p=0,014;R2=0,923 B=-.987; p=0,013;R2=0,923 B=-.494; p=0,260;R2=0,244  B=-.821; p=0,024;R2=0,674	Girls:b=-.930; p=0,020, R2=0,865 Boys: b=1,000, R2=1,000
Noradrenaline	Anxiety CBCL  Anxious Attachment  Evitant Attachment	B=-.961; p=0,009;R2=0,924  B=.037; p=0,944;R2=0,001  B=-.960; p=0,002;R2=0,922	Girls;b=-1,000; p=0,007, R2=1,000 Boys: b=1,000, R2=1,000 Girls;b=.993; p=0,007, R2=0,987 Boys: b=.349, R2=1,000 Girls;b=-.976; p=0,024, R2=0,953 Boys: b=-1,000, R2=1,000

Tabel 3: Regression models for the main effects and interaction effects of the HPA-axis measures split up between individuals with low or high familial vulnerability/parental internalizing problems and split up between boys and girls

CONCLUSIONS

- Apparently, physiological risk factors for psicopathology in obesity are more evident in individuals with a high familial vulnerability.
- In addition, patterns of physiological risk for psicopathology in obesity are different in boys and girls.
- Therefore, it is important to take into account familial vulnerability and gender when investigating physiological risk factors for psicopathology in obesity.
- Insecure attachment in childhood may be a risk factor for obesity.
- Interventions to increase children's attachment security should examine the effects on children's weight.

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